

Art and Science of System Release Planning

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Abstract. Informed and qualified decisions are key factors for project failure or success. The idea of decision support always arises when timely decisions must be made in unstructured or semi-structured problem domains, where multiple stakeholders are involved, and when the information available is uncertain. Release planning (RP) addresses decisions related to the selection and assignment of features to a sequence of consecutive product releases such that the most important technical, resource, budget, and risk constraints are met. Release planning is an important and integral part of any type of incremental product development. The objective of this tutorial is to describe and position the ‘art and science’ of software release planning. The “art of release planning” refers to relying on human intuition, communication, and capabilities to negotiate between conflicting objectives and constraints. The “science of release planning” refers to emphasizing formalization of the problem and applying computational algorithms to generate best solutions. Both art and science are important for achieving meaningful release planning results. We investigate the release planning process and propose a hybrid planning approach that integrates the strength of computational intelligence with the knowledge and experience of human experts.

1 Presenters’ Background

Dr. Günther Ruhe is an iCORE (Informatics Circle of Research Excellence) professor and the Industrial Research Chair in Software Engineering at the University of Calgary. His research interests include software engineering decision support, software release planning, requirements and COTS selection, measurement, simulation, and empirical research. From 1996 until 2001 he was deputy director of the Fraunhofer Institute for Experimental Software Engineering in Kaiserslautern, Germany. He is the author of two books, several book chapters, and more than 140 publications. He is a member of the ACM, IEEE Computer Society, and German Computer Society GI. Dr. Ruhe has been PC member and/or PC chair of various conferences and workshops in many areas of software engineering and knowledge engineering. He has organized and chaired several workshops on software engineering decision support. He is a member of the Editorial Board of several international journals in the area of Knowledge Engineering, Software Engineering, Hybrid Intelligence, Cognitive Informatics, and Advanced Intelligence.

Omolade Saliu is a PhD candidate and an iCORE (Informatics Circle of Research Excellence) scholar in the Computer Science Department at the University of Calgary, Canada. He has two years of industrial experience as a systems analyst. His research interests include software metrics and measurement, software engineering decision support, software process-related issues, and soft computing. He received his MS in computer science from King Fahd University of Petroleum & Minerals, Saudi Arabia. Omolade is a member of the IEEE and Computer Society. He is a PC member of the 2006 HICSS-39 workshop on Strategic Software Engineering. He is currently the vice President Operations of the Software Engineering Consulting Consortium (SECCO) at the University of Calgary, Canada.

2 Research Design

The main goal of the tutorial is to give a comprehensive overview of methods and techniques for performing release planning as part of incremental software development. The whole perspective here is on decisions to be made and how these decisions can be supported to make them more qualified.

What will the participants learn from the tutorial?

- The paradigm of software engineering decision support and its application to software release planning
- State-of-the art and state-of-the practice in software release planning
- The two fundamental approaches called art and science
- The synergy of art and science for release planning
- Case study project from Telecom
- Release planning for evolving systems

3 Scope

This tutorial is aimed at project managers who want to know about the possible support that they can get outside the existing state of practice. Also, it targets business customers who are interested in participating in the release planning process, while protecting their preferences without physical meetings. Software development professionals and academics would also benefit from the technical aspects of the discussion. No prior experience in performing release planning nor any background in computational algorithms is necessary.

4 Summary of Contents

4.1 Paradigm of Software Engineering Decision Support

The idea of decision support always arises when timely decisions must be made in unstructured or semi-structured problem domains, where multiple stakeholders are involved, and when the information available is uncertain. Decision support under these circumstances to us means all activities and techniques that would [1]: